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Part 3

PROTECTING AND MANAGING DUGONGS AND MARINE TURTLES

Introduction¹¹²

This Part summarises measures undertaken by Indigenous groups, government agencies and international organisations to protect and manage dugongs and marine turtles in Australia, including:

- Management agreements, programs and partnerships undertaken by Indigenous organisations;
- Legislative protection;
- Declared conservation status;
- Government agency management programs.

Indigenous initiatives in northern Australia

Management of dugongs and marine turtles occurs as part of Indigenous peoples' role in sea country management. Though Indigenous cultures differ from region to region, traditional Indigenous management of sea country and marine resources includes the following features¹¹³:

- Control of access into coastal marine estates;
- Seasonal use of resources, often governed by ecological indicators (such as the flowering of particular plant species);
- Conduct of increase ceremonies to nurture the well-being of particular species;
- Restrictions imposed on individuals based on age, gender, initiation status, moiety and other cultural factors.

Many aspects of Indigenous marine resource management continue today, though there are constraints on how they are implemented due to:

¹¹² Information presented on the protection and management of dugongs in Australia is derived largely from: Marsh et al. (2002) and Havemann et al. (2005); information presented on the protection and management of marine turtles in Australia is derived largely from Limpus and Chatto (2004) and Dobbs (2005); other information sources are indicated by footnotes.

¹¹³ Smyth (1997)

- Lack of recognition of Aboriginal and Torres Strait Islander authority over local marine estates and marine resources;
- Competition from commercial and recreational fishers and other marine resource stakeholders;
- Declining knowledge of traditional management practices and protocols among some younger Indigenous people;
- Changing social and economic conditions, including the relocation of coastal Indigenous groups to large communities, some of which are inland.

Nevertheless, in all coastal regions of Australia Indigenous groups have developed a variety of initiatives to continue or regain their involvement in marine resource and environmental management in ways that give contemporary expression to their inherited rights and obligations to sea country. These initiatives often occur in partnership with government agencies, research institutions and others.

The following examples of Indigenous initiatives in marine resource management are extracted from a recent review of Aboriginal connections to Sea Country across northern Australia¹¹⁴ and other sources as indicated.

Agreement between neighbouring Traditional Owner groups

Traditional Owners of neighbouring sea country estates across much of northern Australia continue to recognise their respective authority, particularly by seeking permission before entering each other's areas. Recognition of customary authority over sea country also typically includes sharing some of the resources harvested with the Traditional Owners of the sea country from which the resources are obtained. The recognition and exercise of customary authority within Aboriginal communities has not been lost as a result of the application of Australian common law principles of open access to the sea, as the following quotes from Traditional Owners of the Wellesley Islands indicate:

*We have rules about permission for travelling on people's country. If people see strange people around their country there may be a tribal fight. You have to get their permission first.*¹¹⁵

In Yangkaal law if you go hunting in someone else's country then you should come back and share with Dulmada people..... The sea is part of our country

¹¹⁴ National Oceans Office (2004)

¹¹⁵ Statement by Vernon Kelly in Wellesley Islands Native Title Sea Claim

*so the same rules apply. Same for Lardil sea. If you want to fish in that area, you have to get permission from Dulmada. It is the same again in the Gangalidda sea.*¹¹⁶

*A person does the wrong thing if they go to Barardkiya without asking. They cannot go fishing or hunting without asking. That's the same whether they are Lardil, Garawa, Gangalidda or a whitefella..... We usually do not have any problem with people going to our country without asking. Most people know they have to ask. When they ask we let them go fishing. We also make people who fish in our country give us some of the catch. It would be wrong in our law if they didn't. We call it wanangalkara. It means "don't share tucker".*¹¹⁷

Strategic planning by Traditional Owners of sea country

Over the last decade, some Traditional Owner groups have taken strategic action on a regional scale to assert their interests in the management of sea country environments and resources. In 1994 Yolngu Traditional Owners of sea country of north east Arnhem Land released an Indigenous Marine Protection Strategy for Manbuynga ga Rulyapa (Arafura Sea)¹¹⁸ based on Yolngu customary law, which would allow Yolngu to progressively resume responsibility for various levels of management control over their sea country, including management of dugongs and marine turtles. The area covered by the strategy includes waters of the Arafura Sea and Gulf of Carpentaria extending from Maningrida in Central Arnhem Land to Numbulwar on the western shore of the Gulf, and extending northwards into international waters. This strategic approach provides a framework for addressing saltwater management issues in the region, but it does not diminish the need to recognise the authority of Traditional Owners to decide and negotiate on issues relating to their saltwater country, rights and interests.

More recently, the establishment of the North Australian Indigenous Land and Sea Management Alliance (NAILSMA) is developing strategic approaches to Indigenous land, sea and natural resource management across all of northern Australia, from

¹¹⁶ Statement by Nelson Gavenor in Wellesley Islands Native Title Sea Claim

¹¹⁷ Statement by Nelson Gavenor in Wellesley Islands Native Title Sea Claim Joseph Watt

¹¹⁸ Ginitjirranj Mala (1994)

the Kimberley to Cape York Peninsula. NAILSMA is currently engaged in implementing a Natural Heritage Trust (NHT) funded \$3.8 million community-based dugong and marine turtle management project¹¹⁹ across northern Australia, in partnership with the Kimberley Land Council, Northern Land Council, Carpentaria Land Council Aboriginal Corporation, Balkanu Cape York Development Aboriginal Corporation and the Torres Strait Regional Authority, each of which has developed their own Dugong and Marine Turtle Regional Activity Plan.

A 'sister' project to the NAILSMA project is the Carpentaria Ghost Nets Programme (CGNP) in which coastal Indigenous communities around the Gulf of Carpentaria are working together to address the major problem of abandoned (mostly foreign) fishing gear especially ghost nets. Activities include surveys, beach cleanups and research to better understand the entry and movement of discarded nets into the sea; as well as working with governments on international solutions to the problem. The CGNP is funded by the NHT (\$2 million) and is coordinated by the Northern Gulf Resource Management Group.

Aboriginal land and sea management agencies

Northern Territory

Formal Aboriginal involvement in land and sea management through the training and employment of Community Rangers, and the associated establishment of dedicated Aboriginal land and sea management agencies, initially developed in several locations in Queensland and the Northern Territory in the mid 1980s. These agencies are Aboriginal organisations, linked administratively to elected Community Councils or as independent, Traditional Owner based organisations, established to protect and manage the environment, resources and cultural values of Aboriginal land and sea over a defined area. Having begun with little government support or recognition, in some locations these agencies have developed into well established organisations with considerable expertise in planning, geographic information systems, research, training and management and have developed constructive partnerships with research, government and commercial organisations. In some coastal communities where formal land and sea management agencies have not been established, Community Rangers are employed directly by the Community Councils to undertake land and sea country management work. There are now

¹¹⁹ http://savanna.ntu.edu.au/publications/savanna_links30/locals_say_in_dugon.html

about 30 Aboriginal land and sea management agencies in the Northern Territory (see Figure 38).

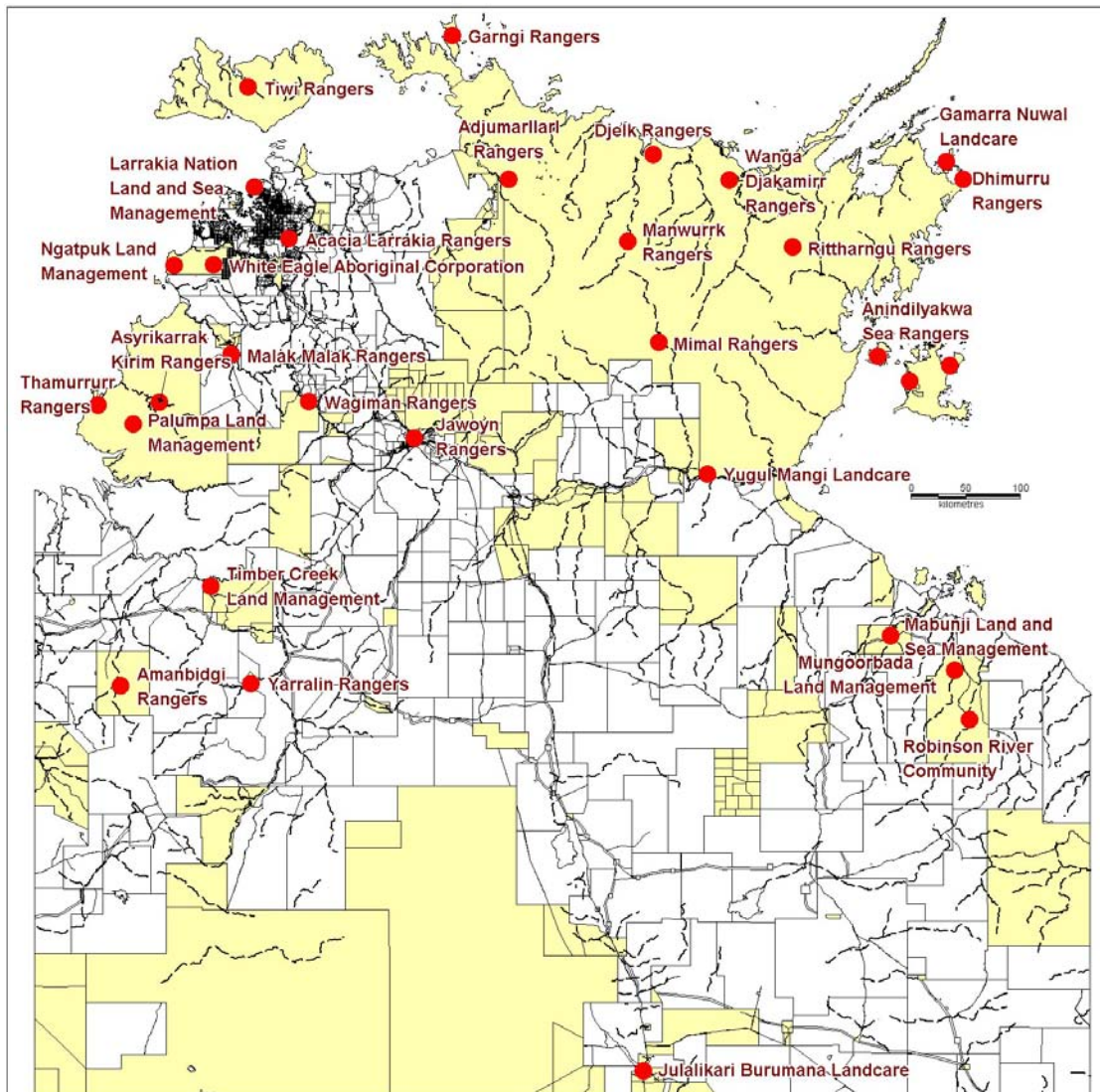


Figure 38: Location of Aboriginal land and sea management agencies in the NT¹²⁰

Dhimurru Land Management Aboriginal Corporation

Dhimurru Land Management Aboriginal Corporation is one example of the Aboriginal land and sea management agencies referred to above. It was established by Yolngu Traditional owners in 1992 in response to the growing impact on Aboriginal land and sea country of the town Nhulunbuy and associated mining and shipping activities. Initially focusing on managing recreational access of Nhulunbuy residents and visitors to Aboriginal land surrounding the town, Dhimurru gradually developed its capacity to engage in strategic planning on land and sea, while also developing

¹²⁰ Storrs et al. (2003)

credibility and partnerships with government and other organisations. This development has been driven by a dual determination to maintain Traditional Owners' rights to manage country, while seeking every opportunity to develop productive partnerships with outside agencies. Key operational issues for Dhimurru include monitoring and addressing the impact of visitor activities on cultural and natural resources in the recreation areas, fostering collaborative research and management partnerships and promoting the role of traditional ecological knowledge in contemporary conservation resource management. The Dhimurru logo is shown in Figure 39



Figure 39: The Dhimurru logo symbolises the two moieties (the black cockatoo represents the Dhuwa moiety and the white cockatoo the Yirritja moiety), encircled by a stem of a coastal ground creeping plant known as *rowu* (*Ipomoea pes-caprae*). This plant represents the unity of the clan groups working together¹²¹.

One of the significant outcomes of this approach was the declaration of an Indigenous Protected Area (IPA) over approximately 101,000 ha of land and sea country on the northeast tip of Arnhem Land, funded initially under the Commonwealth Government's Indigenous Protected Area Program. The Dhimurru IPA is recognised by the Commonwealth Government as part of the National Reserve System of protected areas. The voluntary establishment of the IPA can be seen as an expression of Traditional Owners' desire to achieve good management outcomes, while still maintaining their struggle for more comprehensive recognition of their rights to sea country.

¹²¹ <http://members.octa4.net.au/~dhimurru/default.html>

In 2002 Dhimurru successfully negotiated an agreement under the Section 73 of the *Territory Parks and Conservation Act 2000* to work with the Northern Territory Parks and Wildlife Commission in the administration and management of the IPA. This represents a new type of partnership between Traditional Owners and government conservation agencies in the management of protected areas in Australia.

Dhimurru Land Management Aboriginal Corporation has been involved in a range of marine research projects, including the tagging and tracking of turtles to determine their migratory patterns, and is currently developing a comprehensive Sea Country Plan to provide direction to future marine and coastal management initiatives.

Dhimurru is also involved in the NAILSMA Dugong and Marine Turtle Management Project and the Carpentaria Ghost Nets Programme. In February 2006 Dhimurru released a draft Sea Country Plan of Management, funded by the National Oceans Office (Department of the Environment and Heritage) as part of the development of a Northern Bioregional Marine Plan.

Lianthawirriyarra Sea Ranger Unit

The Lianthawirriyarra Sea Ranger Unit is another example of an Indigenous Caring for Country agency in the Northern Territory. The Lianthawirriyarra Sea Ranger Unit was formed in September 2002 by the Traditional owners of the Sir Edward Pellew Islands in the southwestern Gulf of Carpentaria to undertake regular surveillance of sea country, monitor populations of dugongs, marine turtles and others threatened species, as well as undertake public education and implement measures to control marine debris.

To achieve these objectives the Lianthawirriyarra Sea Ranger Unit has developed partnerships with researchers, conservation organisations and government agencies. Projects undertaken to date include:

- Completion of a Sea Country Plan, with assistance from consultant Dr John Bradley, funded by the National Oceans Office (Department of the Environment and Heritage);
- Monitoring the health and population dynamics of the dugong and sea turtle population with Dr Scott Whiting (WWF);
- Necropsy and tissue sampling of traditionally harvested dugong in cooperation with traditional hunters, to investigate the health of the dugong population in the southwestern Gulf;

- Fauna surveys for threatened species on the Sir Edward Pellew Islands in partnership with Threatened Species Network (WWF) and Parks and Wildlife Service of the Northern Territory (PWSNT);
- Surveillance patrols of the Sir Edward Pellew Islands region, including public education and provision of information on fisheries, Aboriginal island access and local knowledge; monitoring for species mortality; Monitoring illegal fishing activity and public visitation on Aboriginal islands (particularly sacred sites), liaison with traditional owners and commercial fishermen including crabbers; search and rescue operations;
- Joint surveillance patrols with Australian Customs Service, Northern Territory Marine and Fisheries Enforcement Unit and Northern Territory Department of Primary Industries and Fisheries (NTDPIF) and year round intelligence gathering for these agencies;
- Establishment of Marine Wildlife Stranding and Mortality reporting network for the southwestern Gulf with McArthur River Mining (MRM) Bing Bong port facility, King Ash Bay Fishing Club, PWSNT and NT Police;
- Eradication of feral dogs that historically predated on nesting sea turtles on West Island, in cooperation with the Traditional Owner and PWSNT;
- Eradication of feral goats on West Island in cooperation with Traditional Owners in response to their concerns of landscape degradation;
- Partnership (Borrooloola Network Group) with PWSNT, Charles Darwin University, WWF, National Oceans Office, Northern Land Council developed as a result of this Ranger Unit's reports of significant ecological events and concerns raised by Traditional Owners, e.g. fish kills, widespread floating turtle syndrome, 'bad meat' in traditionally harvested dugong and turtle, and decline in other marine species;
- Marine debris survey undertaken in partnership with WWF;
- Liaison with NT Crab Fishermen's Association and crabbers to address ongoing rubbish disposal issues at crab fishermen's camps.

The Lianthawirriyarra Sea Ranger Unit currently comprises three Rangers and one Coordinator and is administered as part of the Mabunji Aboriginal Resource Association based in Borrooloola

Northern Land Council's Caring for Country unit

Regional environmental planning and management by Aboriginal people across the Top End of the Northern Territory is supported by the Northern Land Council through its Caring for Country unit (CFCU), and by specialist staff dealing with fisheries management and more general sea country management issues. The CFCU has developed partnerships with funding, research, conservation and training organisations. CFCU's roles include:

- Consulting and negotiating with Traditional Owners over environmental and resource management issues;
- Promoting the application of Indigenous Knowledge and Western Science to contemporary environmental management problems;
- Facilitating the establishment of community based Natural Resource Management Teams;
- Facilitating clan estate scale environmental assessment;
- Facilitating getting people back to country, including sea country monitoring patrols;
- Facilitating the delivery of natural resource management education and training to communities and individuals;
- Promoting economic enterprise development based on the sustainable use of wildlife.

Indigenous initiatives in Torres Strait

In 1998 the Island Coordinating Council and the Torres Strait Regional Authority (TSRA) jointly released a *Marine Strategy for Torres Strait*¹²². The Marine Strategy has broad goals to achieve cultural, ecological and economic sustainability in the use of the marine resources of Torres Strait, including dugongs and marine turtles.

Torres Strait Islanders have participated in dugong and turtle harvesting monitoring programs since the early 1990s and held several key workshops to develop strategic approaches to dugong and marine turtle management. The Vision Statement from a workshop titled “Towards Community Based Management of Dugong and Turtles in Torres Strait held in June 1998” reads:

Effective community based management of dugongs and turtles conducted in a way which maintains Ailan Kastom and ensures the long term survival of these species as an essential component of Torres Strait culture, identity and sea life.

Torres Strait Islanders are participating in both the NAILSMA Dugong and Marine Turtle Management Project and the Carpentaria Ghost Nets Programme. A Ranger Program has recently been established on Badu Island, jointly funded under NHT, NLP and Department of Education and Workplace Relations Indigenous Employment Program.

¹²² TSRA and ICC (1998)

A Land & Sea Management Strategy has been developed for the Torres Strait region, and the TSRA intends to establish a unit to support land and sea management initiatives utilising seed funding under the Natural Heritage Trust initiative. The Land & Sea Management Unit will play an important role in coordinating regional land and sea management initiatives, including through building local capacity for the co-management of dugong and marine turtles in collaboration with government agencies, researchers and Aboriginal and Torres Strait Islander communities in the region.

Indigenous initiatives in the Great Barrier Reef Region

Many Aboriginal groups in the Great Barrier Reef region, as well as further south along the Queensland coast, have initiated marine resource management projects over the last ten years. Examples of these initiatives include:

- The preparation of a *Sea Plan* by members of the Lockhart River Aboriginal Community in 1995¹²³, which includes strategies and actions for greater Aboriginal involvement in marine management, including commitment to monitor and sustainably use dugongs and marine turtles.
- The preparation of a Dugong and Marine Turtle Management Plan by the Hopevale Aboriginal Community in 1999, which won the Prime Minister's Environment Award in 2000¹²⁴. This Plan has not been implemented consistently for several reasons, including: death of key elders and individuals, personnel changes at Hopevale and GBRMPA, lack of resources, and a federal ministerial decision in 2000 that prevented the managing agencies from issuing community hunting permits, even though such permits were a central part of the Plan¹²⁵. Hopevale Community has collaborated over many years with researchers at James Cook University and staff of the Great Barrier Reef Marine Park Authority (GBRMPA) in relation to research and management of dugongs and turtles.
- Voluntary agreements by several coastal Aboriginal groups to suspend dugong hunting in the southern Great Barrier Reef region due to declining dugong populations. The latest agreement, signed in July 2005, involves a Memorandum of Understanding between Juru, Gia and Ngaro Traditional Owners from Ayr, Bowen and Proserpine and the Queensland Environmental Protection Authority to suspend dugong hunting and introduce a self-managed permit system to control and monitor turtle hunting¹²⁶.
- Giringun Aboriginal corporation in Cardwell has developed a Sea Rangers program and negotiated a Traditional Use of Marine Resources Agreement (TUMRA) as steps towards cooperative management of the part of the Great Barrier Reef Marine Park;

¹²³ Wynter et al. (1995)

¹²⁴ Hopevale Aboriginal Community (1999)

¹²⁵ Haveman et al. (2005)

¹²⁶ http://www.epa.qld.gov.au/about_the_epa/public_reporting/epa_bulletin/issue_19_14_july_2005/#protect

- Sea Forum, a collective of Aboriginal Traditional Owner groups from the Southern Great Barrier Reef (from Cooktown south to Fraser Island), presented a discussion paper to Government in 1999 outlining ways forward for co-management of sea country, including co-management of dugongs and marine turtles¹²⁷; Sea Forum, which is no longer functioning, was established in response to a Ministerial Council decision in 1997 to ban dugong hunting in the southern Great Barrier Reef.

Indigenous initiatives in Western Cape York Peninsula

Turtle Conservation Camps are run by the Mapoon Aboriginal Community on the north-west coast of Cape York Peninsula, during which paying guests (eco-tourists) work with the Mapoon Rangers, Traditional Owners and researchers to measure and tag nesting Flatback and Olive Ridley turtles, fit feral pig exclusion devices to the nesting sites and remove discarded fishing nets from the beach with the aid of purpose-equipped 4WD vehicles¹²⁸.

Indigenous initiatives in Western Australia

The Kimberley Land Council (KLC) has established a Land and Sea Management Unit¹²⁹ to undertake projects for looking after land and sea country, including marine resource management. The unit works with Traditional Owners to look after, manage and take control of traditional country, and has partnerships with community organisations, industry, government agencies and local government. The KLC Land and Sea Management Unit currently manages 26 projects with 6 staff members across the region, including on-ground land-care and conservation projects, cultural heritage site management, recording traditional knowledge and planning for country.

The KLC Land and Sea Management Unit works collaboratively with organisations such as the Kimberley Language Resource Centre, Northern Land Council Caring for Country Unit, and Balkanu Cape York Development Corporation, and with research agencies such as CRC Tropical Savannas Management, CSIRO, Murdoch University. Projects are funded by NHT, CSIRO, Land & Water Australia, CRC Tropical Savannas, Office of National Tourism, and other agencies.

¹²⁷ Sea Forum (1999)

¹²⁸ <http://turtlescapeyork.com/>

¹²⁹ <http://www.klc.org.au/landsea.htm>

The Gnulli Working Group, representing the Traditional Owners of the Northwest Cape area near Exmouth were involved in the development of the Jurabi Turtle Centre which opened in March 2004, in collaboration with conservation, government and industry partners¹³⁰. The interpretive centre is located in the Jurabi Coastal Park, which is a breeding ground for Green, Loggerhead and Hawksbill turtles.

Government initiatives in dugong and turtle management

Legislation

Dugongs and marine turtles are protected and managed under international, Commonwealth, State and Territory legislation, as summarised in Table 6 below.

Table 6: International, Australian, State/Territory agreements relevant to the protection of dugongs and turtles

Jurisdiction	Legislation
International	<i>Convention on Migratory Species</i> <i>Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of Indian Ocean South East Asia (IOSEA)</i> Development of regional arrangements for dugong and Pacific turtles <i>Convention on the International Trade in Endangered Species Wild Fauna and Flora (CITES)</i> <i>Convention on Biological Diversity</i>
Commonwealth	<i>Environment Protection and Biodiversity Conservation Act 1999.</i> <i>Great Barrier Reef Marine Park Act 1975</i>
Western Australian	<i>Wildlife Conservation Act 1950.</i> <i>Wildlife Conservation (Close Season for Marine Mammals) Notice 1998</i> (which manages interactions between humans and marine mammals in state waters)
Queensland: Torres Strait	<i>Nature Conservation Act 1992.</i> <i>Marine Parks Act 1982</i> <i>Torres Strait Treaty</i> <i>Torres Strait Fisheries Act 1984 (Commonwealth)</i> <i>Torres Strait Fisheries Act 1984 (Queensland)</i>
Northern Territory	<i>Northern Territory Parks and Wildlife Conservation Act 2000</i>

¹³⁰ <http://www.ningalooturtles.org.au/partners.htm>

The legislation referred to above provides various mechanisms for the recognition of Indigenous people's right to hunt dugong and marine turtles for subsistence and other non-commercial cultural purposes. Section 211 of the *Native Title Act 1993 & 1998* also protects native title holders' non-commercial hunting rights. Governments, however, retain the authority to regulate Indigenous hunting to ensure the conservation of species¹³¹.

Conservation Status of Dugongs

The conservation status of dugongs internationally and in northern Australia is summarised in Table 7 below.

Table 7: Conservation status of dugongs

Jurisdiction	Conservation Status
International	Vulnerable to extinction (IUCN Red Data Book of Threatened Species) ¹³² Listed in Appendix I of <i>Convention on International Trade in Endangered Species</i> (CITES) and in Appendix 2 of the <i>Convention for the Conservation of Migratory Species of Wild Animals</i> (CMS) (IUCN is currently reviewing the conservation status of dugongs, which is likely to remain listed as "vulnerable")
Commonwealth	Listed Migratory Species (EPBC Act) Listed Marine Species (EPBC Act) Protected Species (GBRMP Act)
Western Australia	Listed as <i>Specially Protected Fauna</i>
Queensland:	Vulnerable (<i>Nature Conservation Act</i>) Protected Species (<i>Marine Park Act 1982</i>)
Northern Territory	Low Risk

Conservation Status of Marine Turtles

The conservation status of marine turtles varies from country to country and depends largely on whether they are given the opportunity to recover after any decline. Marine turtles are considered to be declining globally, despite the implementation of conservation efforts in many countries, including Australia (such as the compulsory use of Turtle Exclusion Devices on trawl nets). The IUCN in

¹³¹ Havemann et al. (2005)

¹³² www.redlist.org/

applying its Red List Categories¹³³ determined the conservation status of marine turtles globally. The vulnerability of marine turtles is also recognised by their listing under international agreements such, as the *Convention for the Conservation of Migratory Species of Wild Animals* (CMS, also known as the Bonn Convention)¹³⁴ and the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES)¹³⁵. The conservation status of marine turtles in Australia and internationally is summarised in Table 8.

Table 8: Conservation status of marine turtles in Australia and internationally

	Australia				International
	EPBC Act	QLD	WA	NT	
Green	Vulnerable	Vulnerable	Rare, or likely to become extinct	Least Concern	IUCN - Endangered, CMS - Appendix I and II CITES - Appendix I
Loggerhead	Endangered	Endangered	Rare, or likely to become extinct	Endangered	IUCN - Endangered CMS - Appendix I and II CITES - Appendix I
Hawksbill	Vulnerable	Vulnerable	Rare, or likely to become extinct	Data Deficient	IUCN - Critically endangered CMS - Appendix I and II CITES - Appendix I
Flatback	Vulnerable	Vulnerable	Rare, or likely to become extinct	Data Deficient	IUCN - Data deficient, CMS - Appendix II CITES - Appendix I
Olive Ridley	Endangered	Endangered	Rare, or likely to become extinct	Data Deficient	IUCN - Endangered, CMS - Appendix I and II CITES - Appendix I
Leatherback	Vulnerable	Endangered	Rare, or likely to become extinct	Vulnerable	IUCN - Critically endangered CMS - Appendix I and II CITES - Appendix I

The reason the species are listed differently under the various conventions & laws reflects the scale at which the assessments are made. For example, the IUCN listing is a world wide assessment. The EPBC Act provides an Australian perspective of the conservation status of marine turtles. For example, globally Hawksbill turtle populations have been decimated across nearly their entire range; however in Australia the populations have not been exploited as much and hence

¹³³ www.redlist.org/

¹³⁴ www.cms.int/

¹³⁵ www.cites.org/

are in a better state than in other places of the world (e.g. Caribbean). This assessment doesn't mean that Australia shouldn't be concerned about protecting the species; rather it means that Australia is better placed to ensure the long term survival of the species in its waters.

Australian Government initiatives

The NAILSMA Dugong and Marine Turtle Management Project.

The Australian government, through the NHT, has provided \$3.8 million to NAILSMA develop strategic community based approaches across north Australia to dugong and marine turtle management and conservation (see previous section on Indigenous initiatives).

A Recovery Plan for Marine Turtles

The Australian Government's *Recovery Plan for Marine Turtles in Australia* was released in 2003¹³⁶; a revised version is currently out for public comment¹³⁷. The *Recovery Plan* identifies six objectives that aim to aid the recovery of marine turtles.

These are:

- A. Reduce the mortality of marine turtles and, where appropriate, increase natural survivorship, including through developing management strategies with Aboriginal and Torres Strait Islander communities for the sustainable use of marine turtles.
- B. Develop programs and protocols to monitor marine turtle populations in Australia, assess the size and status of those populations, the causes of their mortality and address information gaps.
- C. Manage factors that affect marine turtle nesting.
- D. Identify and protect habitats that are critical for the survival of marine turtles.
- E. Communicate the results of recovery actions and involve and educate stakeholders.
- F. Support and maintain existing agreements and develop new collaborative programs with neighbouring countries for the conservation of shared turtle populations.

The Recovery Plan for Marine Turtles is currently being revised by the Australian Government's Department of the Environment and Heritage.

¹³⁶ <http://www.deh.gov.au/coasts/publications/turtle-recovery/index.html>

¹³⁷ <http://www.deh.gov.au/biodiversity/threatened/publications/recovery/marine-turtles/index.html>

Sustainable Harvest of Marine Turtles and Dugongs in Australia - A National Partnership Approach

In January 2004 the Marine and Coastal Committee (the MACC) of the Natural Resource Management Ministerial Council, established a Taskforce on Dugong and Turtle Populations. The Taskforce was established so that the Australian, State and Territory Governments could develop a national approach to the sustainable management of Indigenous harvest of marine turtles and dugongs. The Taskforce included representatives from Australian, State and Territory Government departments and agencies responsible for environment, natural resource management and Indigenous policy. Taking into account submissions from over 30 Indigenous bodies, land councils, conservation organisations, researchers, academics, animal welfare groups and individuals on a draft document released in mid-2005, the Taskforce released its final report, "*Sustainable Harvest of Marine Turtles and Dugongs in Australia - A National Partnership Approach*"¹³⁸ in November 2005.

The *National Partnership Approach* recognises that many Traditional Owner groups, community based rangers and Native Title Representative Bodies are already involved in community initiatives to achieve sustainable management of turtles and dugongs – including the development of Regional Activity Plans by Indigenous communities across north Australia as part of the NAILSMA Dugong and Marine Turtle Project. The document also recognises that nothing in the *National Partnership Approach* can affect Indigenous peoples' native title right to hunt under Section 211 of the *Native Title Act* 1993.

In developing the *National Partnership Approach*, the MACC Taskforce considered:

- the conservation of turtles and dugongs, including the need to act to protect these species before their conservation status worsens;
- the economic, spiritual and cultural importance of turtles and dugongs to Indigenous peoples;
- the importance of turtles and dugongs as part of Australia's unique marine environment to all Australians;
- ensuring consistency with Indigenous people's legal rights pursuant to s211 of the *Native Title Act* and other relevant legislation;
- the wider context of social issues facing Indigenous communities, such as isolation and poverty, the maintenance of culture, and the role that turtle and

¹³⁸ <http://www.deh.gov.au/coasts/species/turtles/national-approach.html#download>

dugong harvesting often plays in remote communities where nutritious diets are often difficult to otherwise obtain;

- the need for the best possible information on which Traditional Owners and government agencies can base management decisions;
- the need to better support and resource Indigenous communities to sustainably manage turtles and dugongs;
- the recognition of the range of impacts adversely affecting turtles and dugongs such as adverse interactions with fisheries, marine debris, and habitat destruction;
- existing measures to address threats to turtle and dugong such as recovery plans, policies and legislation already in place;
- the legal parameters surrounding Indigenous harvest – such as the EPBC Act, the *Native Title Act 1993*, *Great Barrier Reef Marine Park Act 1975*, *Torres Strait Fisheries Act 1984*, the *Community Services (Aborigines) Act 1984* (QLD), the *Community Services (Torres Strait) Act 1984* (QLD), the *Nature Conservation Act 1992* (QLD), the *Territory Parks and Wildlife Conservation Act 2001* (NT);
- the need for jurisdictions to cooperate in a meaningful manner with one another and with those Indigenous communities with sea country where harvest occurs;
- that a regulatory approach would be difficult and expensive to enforce, and may have limited impact; and
- the success of this *Approach* will be dependent on the provision of the necessary resources to Indigenous communities by all levels of government to increase the sustainable management of turtles and dugongs.

The *National Partnership Approach* provides for the establishment of a *Partnership for Sustainable Indigenous Harvest of Turtles and Dugong*, comprising:

- Indigenous representatives from coastal northern, eastern and western Australia within the range of turtles and dugongs;
- two representatives from the EPBC Act Indigenous Advisory Committee;
- one representative from TSRA;
- one representative from the GBRMPA; and
- one government representative from each relevant government jurisdiction (Australian, Queensland, Northern Territory and Western Australian governments).

The Australian Government Department of the Environment and Heritage will provide administrative support to the Partnership. Specific goals of the *National Partnership Approach* are:

- Improve the information base available to Indigenous communities for managing the sustainable harvest of turtles and dugongs;

- Respect Indigenous and non-Indigenous knowledge and management;
- Improve Education and Awareness;
- Identify the economic, social and cultural factors that may contribute to unsustainable harvest levels and identify and implement measures to address them;
- Protect Sea Country resources.

Indigenous organisations involved in dugong and turtle management across northern Australia had not formally responded to proposals contained in the final *National Partnership Approach* document at the time this *Knowledge Handbook* was completed.

Marine Debris

In August 2003, the Australian Minister for the Environment and Heritage listed "Injury and fatality to vertebrate marine life caused by ingestion or entanglement in harmful marine debris" as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)¹³⁹.

Harmful marine debris is considered under this listing to include things such as plastic garbage washed or blown from land into the sea, fishing gear abandoned by recreational and commercial fishers, and solid non-biodegradable floating materials (such as plastics) disposed of by ships at sea. Marine debris resulting from the legal disposal of garbage at sea is not included under this key threatening process listing. Under the *International Convention for the Prevention of Pollution from Ships*, overboard disposal of food, paper, glass, metal and crockery (but not plastics) is permitted from vessels more than 12 nautical miles from land.

Following from the listing of harmful marine debris as a key threatening process, the Australian Government is developing a *Threat Abatement Plan for Marine Debris* which is intended to provide a framework for the prevention and management of the problem. The plan, developed in consultation with representatives from industry, industry-support groups, government, non-government organisations, volunteer groups, conservation organisations and some Indigenous organisations will:

- Review existing policies, codes of practice, conventions and activities to determine their effectiveness;

¹³⁹ <http://www.deh.gov.au/biodiversity/threatened/publications/marine-debris.html>

- Coordinate abatement strategies identified in separate marine animal Recovery Plans such as the Marine Turtle Recovery Plan and the Grey Nurse Recovery Plan;
- Examine the need to strengthen international measures to address the issues of marine debris and its impact on wildlife.

Meanwhile, the Australian Government has allocated \$2 million from the Natural Heritage Trust to fund the *Carpentaria Ghost Net Programme - Saltwater People Working Together*¹⁴⁰, which involves collaboration between Indigenous community groups in the Gulf of Carpentaria and into Torres Strait to address the problem of ghost nets (discarded fishing nets) (see also page 94 under **Indigenous Initiatives**).

There are other key threatening process listed under EPBC Act which are relevant to marine turtles, including predation by the European Red Fox¹⁴¹ and feral pigs¹⁴².

Reducing the impact of the trawl fishery

The Australian Fisheries Management Authority (AFMA) manages a number of fisheries where there are interactions with marine turtles, notably the Northern Prawn Fishery (NPF). In addition to the compulsory use of TEDs from April 2000, there are area closures in the NPF that provide some measure of protection to turtles. Most areas of inshore seagrass habitat in the Gulf of Carpentaria are permanently closed to trawling. These inshore areas are frequently the feeding grounds of turtle species including the Green turtle. Seasonal closures in the NPF may also offer protection to turtles as they coincide with nesting periods for some species. The NPF is seasonally closed from 1 December to 30 March and again from 16 June to 31 July.

Extensive areas closed to trawl fisheries within the Great Barrier Reef Marine Park also contribute to the protection to marine turtles.

Bioregional Marine Planning

As part of the implementation of Australia's Ocean Policy¹⁴³, the National Oceans Office, formerly an Australian Government executive agency and now part of the Marine Division of the Australian Government Department of Environment and

¹⁴⁰ <http://www.mccn.org.au/article.php/id/678/>

¹⁴¹ <http://www.deh.gov.au/biodiversity/threatened/publications/tap/foxes/index.html>

¹⁴² <http://www.deh.gov.au/biodiversity/threatened/ktp/feralpigs.html>

¹⁴³ Commonwealth of Australia (1998)

Heritage (DEH), is currently developing a Bioregional Marine Plan which includes Australian waters in Torres Strait, the Gulf of Carpentaria and the Arafura Sea as far west as Goulburn Islands. A Regional Profile for the Northern Planning Area will be released for public comment in mid-2006. The planning process has involved several initiatives relevant to Indigenous involvement in dugong and marine turtle management, including:

- Publication of *Living on Saltwater Country - Review of literature about Aboriginal rights, use, management and interests in northern Australian marine environments*¹⁴⁴;
- Publication of *Key Species – A Description of Key Species Groups in the Northern Planning Area*¹⁴⁵;
- Publication of *Snapshot of the Northern Planning Area*¹⁴⁶;
- Funding the development of four pilot Sea Country Plans, currently being developed by Traditional Owners for their sea country in northeast Arnhem Land, southwestern Gulf of Carpentaria, Wellesley Islands in the Gulf of Carpentaria and Aurukun in western Cape York Peninsula.¹⁴⁷

Dugong and Marine Turtle Tourism

Dugongs and marine turtles are increasingly becoming part of the marine tourism experience in northern Australia. During 2004 and 2005 the Department of Environment and Heritage funded a research project to develop a Code of Conduct for dugong and marine turtle tourism, to ensure that dugongs and marine turtles, and the Indigenous cultural values associated with them, are not harmed as a result of marine tourism activities. The Code of Practice, developed by a research team from James Cook University in consultation with selected Traditional Owner groups, management agencies, tourism operators and researchers across northern Australia, was released in October 2005¹⁴⁸.

¹⁴⁴ National Oceans Office (2004)

¹⁴⁵ National Oceans Office (2004b)

¹⁴⁶ National Oceans (Office 2003)

¹⁴⁷ http://www.oceans.gov.au/Sea_Country.jsp

¹⁴⁸ <http://www.dugongturtletourism.org/>

Western Australia Government initiatives

Dugongs

Initiatives and programs to protect and manage dugongs in Western Australia include:

- Shark Bay was closed to commercial mesh net fishing in 1986 to protect the dugong population.
- Educational information about dugongs is presented at the Monkey Mia visitor centre.
- The WA Department of Land Management (CALM) has developed a Code of Conduct for licensed charter boats operating from Monkey Mia, which limits vessels to one trip per day to seagrass beds occupied by dugongs, and which prescribes how vessel interaction with dugongs should occur.
- Regular reviews by CALM of the habitat protection provisions for the Ningaloo Marine Park, to assess their capacity to protect dugongs and their habitats.
- The Jurabi Turtle Centre, a tourism interpretation and community education centre has recently been opened in Jurabi Coastal Park north-west of Exmouth, where nesting of Green, Loggerhead and Hawksbill turtles takes place. The Jurabi Turtle Centre is the result of collaboration between government, conservation groups, Traditional Owners and industry partners.

Marine Turtles

Under the Western Australian *Wildlife Conservation Act 1950* Loggerhead and Leatherback turtles are listed as threatened species. All other turtles are protected as native fauna. Provision is made in this Act for hunting by Indigenous people. The Western Australian Department of Conservation and Land Management (CALM) is involved in marine turtle conservation and the Western Australian Marine Turtle Program has been operational since 1985. Most significant rookeries (nesting sites) are on island nature reserves, but there is a need to develop protocols for the management and use of these sites. A management plan is currently being prepared for marine turtles in Western Australian waters. Research and monitoring activities include:

- long-term monitoring of most major rookeries;
- migration studies;
- estimates of inshore numbers at feeding grounds;
- management of oil field lighting and seismic activities to minimise impact on marine turtles;
- diseases in marine turtles (the petroleum industry has provided support);
- development of interaction with indigenous groups in monitoring programs;

- salvage of Leatherback and other turtles entangled in crayfish pot floatlines in summer.

No reliable figures are available on the bycatch of marine turtles from Western Australian trawl fisheries. Fisheries WA has developed a program and timeframe for the implementation of the Western Australian Policy on Fisheries Bycatch. Development of action plans for the Shark Bay Trawl Fisheries and the Pilbara Trawl Fishery. Marine turtle bycatch will be addressed with these action plans. The development of bycatch action plans takes account of potential bycatch issues by separating fisheries into three groups on the basis of the nature and degree of significance of bycatch issues.

Western Australia's system of Marine Conservation Areas, including nine marine parks, contributes to the protection of dugongs, marine turtles and their habitats¹⁴⁹.

Northern Territory Government initiatives

Dugongs

The Northern Territory Parks and Wildlife Service (Department of Infrastructure, Planning and Environment) have prepared a Draft *Management Program for the Dugong in the Northern Territory 2003-2008*¹⁵⁰ to provide for the long-term conservation of dugongs within the Northern Territory.

The Objectives and Actions of the Draft *Management Program for the Dugong in the Northern Territory* are set out below:

Objectives

- Maintain viable wild populations of Dugong and conserve the marine habitat upon which they depend, by:
 - I. Identifying and encouraging protection of important Dugong habitats;
 - II. Identifying anthropogenic sources of Dugong mortality;
 - III. Managing and mitigating identified direct and indirect threats to Dugong and Dugong habitat;
 - IV. Developing a monitoring program on Dugong in Northern Territory waters for monitoring of both populations and habitat at all scales.

¹⁴⁹ http://www.naturebase.net/national_parks/marine/index.html

¹⁵⁰ http://www.nt.gov.au/nreta/pwcnt/pwcnt/docs/dugong_management_program.pdf

Actions

Management

- establish the need for declaration under Section 37 *Territory Parks and Wildlife Conservation Act 2001 (TPWCA)* of areas of essential habitat for Dugong conservation;
- consult with Aboriginal people regarding the need for protected areas for Dugong, within which indigenous requirements in relation to Dugong protection are addressed;
- cooperate with the Commonwealth in the protection of Dugong habitat in Commonwealth waters;
- consult with professional fishers, the Department of Business, Industry and Resource Development (DBIRD), the Northern Territory Seafood Council (NTSC) and Aboriginal people to identify those areas of Dugong habitat where mesh nets are used;
- consult with professional fishers, DBIRD, NTSC and Aboriginal people to determine a range of management options that may be implemented if monitoring indicates a Parks and Wildlife Service Department of Infrastructure, Planning and Environment Dugong Management Program requirement to regulate fishing in an area to reduce incidental catch. Management options to be considered may include:
 - I. use of fishing gear and fishing practices that reduce incidental catch, and
 - II. zonal closures (total and/or seasonal);
- in consultation with professional fishers, DBIRD, NTSC and Aboriginal people, develop an education program for professional fishers on aspects of Dugong conservation biology and management, and on methods to minimise the incidental catch of Dugong.

Monitoring

- consult with Aboriginal communities to establish culturally acceptable mechanisms to monitor traditional harvest;
- consult with professional fishers, local communities, DBIRD and NTSC to establish mechanisms to monitor incidental catch;
- monitor Northern Territory Dugong population distribution and abundance using aerial surveys;
- continue mapping of seagrass distribution as part of the marine habitat mapping program.

Sustainable Utilisation

- consult with Aboriginal communities regarding co-management arrangements which, subject to need, may include:
 - I. issue of permits under Section 73(1B) of the *TPWCA* for the taking of Dugong in accordance with Aboriginal tradition,
 - II. closed areas where hunting is not permitted,
 - III. seasonally closed areas where hunting is not permitted,
 - IV. annual harvest limits for specific hunting areas, and

- V. annual harvest limits for individual hunters and/or communities;
- consult with Aboriginal communities to develop culturally appropriate education programs to ensure that Aboriginal people are aware of:
 - I. the need for Dugong conservation,
 - II. the potential impacts of traditional hunting, and
 - III. the need to take responsibility for conservatively managing their Dugong harvest.

Other measures to protect or manage dugongs in the Northern Territory include:

- An information kit prepared by the Northern Territory Fishing Industry Council in 1997 outlining specific practices and precautions when fishing in dugong areas;
- The Northern Prawn Fishery has made considerable effort to close off all areas of seagrass to prawn trawling;
- The Northern Land Council and the Northern Territory Fishing Industry Council jointly released a strategy in 1996 to minimise accidental capture of dugongs in barramundi nets. The Strategy, which applies to the area from Bing Bong Creek to Pelican Spit along the coast of the Gulf of Carpentaria near the Sir Edward Pellew Islands, includes:
 - the protection of parts of a seagrass dugong feeding area near the mouth of the McArthur River;
 - a ban on the use of nets near the mouth of the McArthur River;
 - a ban on the use of bait nets from Bing Bong Creek to the Queensland border;
 - Bait net fishers to attend their nets at all times.

Marine Turtles

The *Territory Parks and Wildlife Conservation Act 2000* lists marine turtles as protected wildlife. The Northern Territory Government also has a 'Conservation through the sustainable use of wildlife' policy, and on behalf of Aboriginal landholders and others has encouraged research into the production of marine turtles through ranching and captive breeding. The commercial export of products derived from turtles is currently prohibited by the EPBC Act. The Parks and Wildlife Commission of the Northern Territory (PWCNT):

- has carried out aerial and ground surveys to determine where the high use breeding areas are for marine turtles;
- is identifying and mapping marine habitats;
- has examined habitat use by marine turtles around Cobourg Peninsula and monitored and tagged flatback turtles on Greenhill Island between 1995 and 1997;

- is monitoring nesting by turtles at Cobourg Peninsula and Casuarina Beach in Darwin;
- is working with Dhimurru Land Management Aboriginal Corporation particularly on the ghost netting of juvenile turtles on Cape Arnhem;
- is working with the Northern Land Council to increase cooperation between coastal communities and PWCNT;
- has recently reviewed the status of all turtle species in NT waters with loggerhead classified as endangered and leather back turtles classified as vulnerable; and
- in conjunction with relevant stakeholders, is investigating options for ranching and captive breeding of hawksbill turtles.

The Northern Territory Department of Business, Industry and Resource Development (NTDBIRD) has collaboratively been involved in quantifying marine turtle/fisheries interactions and trialing TEDs and BRDs.

Queensland Government initiatives

Dugongs

Gulf of Carpentaria

Measures to protect and/or manage dugongs in Queensland waters within the Gulf of Carpentaria include:

- Closure of 17 of the 27 rivers in the Gulf of Carpentaria to commercial fishing;
- Negotiation of an agreement between the Environment Protection Agency and the Angumothimaree people restricting dugong and turtle hunting in the Pine River area near Weipa to four months per year
- The establishment of the Wellesley Islands Protected Wildlife Area, which prohibits the use of gills nets around the islands and adjacent mainland – though barramundi gill nets are exempt from this prohibition;
- The Northern Prawn Fishery has closed off specific areas within the Gulf of Carpentaria from prawn trawling.

Torres Strait

Measures to protect and/or manage dugongs in Torres Strait are primarily governed by the provisions of the Torres Strait Treaty, ratified in 1985, between Australia and PNG and the *Torres Strait Fisheries Act 1984*. The Treaty establishes an area in the Torres Strait known as the Torres Strait Protected Zone. The principal objective in establishing the Protected Zone is to acknowledge and protect the traditional way of

life and livelihood of the traditional inhabitants of the area. Management regulations and initiatives of relevance to dugongs (*dangal* and *deger*) and turtle (*waru* and *nam* in the traditional languages) currently implemented include:

- Dugong hunting in the Torres Strait Protected Zone and adjacent areas is managed as a fishery under the *Torres Strait Fisheries Act 1984* and take is limited to traditional inhabitants only. Dugong and turtle may only be taken in the course of traditional fishing and used for traditional purposes (e.g. subsistence food or for special occasions such as weddings, funerals and tombstone openings).
- In 1985 a segment of the Torres Strait Protection Zone and an adjacent area were designated as a “Dugong Sanctuary” (see Figure 40) in which no Indigenous hunting was to take place. As there is little surveillance of the Sanctuary, and the area is known to support low numbers of dugong, the effectiveness of the sanctuary is uncertain.
- In 1995 the Torres Strait Protected Zone Joint Authority implemented a ban on hunting methods other than use of the traditional *wap* or spear thrown by hand. This was mainly to address the problem of fishers from Papua New Guinea netting dugongs in Australian waters around Saibai and Dauan Islands. There are currently no other limits on hunting effort, numbers of hunters or catch of dugongs.
- The taking or carrying of dugong or turtle on a commercial fishing boat is prohibited. A person is exempt from this prohibition if a current Traditional Inhabitant Boat licence is held where the nominated boat is less than or equal to 6 metres in length.
- A CSIRO program monitored the marine catch of communities in the Australian Sector of the Protected Zone between June 1991 and May 1993. The program trained Islander observers to monitor the marine catch with the aim of detecting changes in the fishing pattern, catch and levels of seafood use in the “Protected Zone”.
- AFMA staff participate in and contribute to the Australia-Papua New Guinea Torres Strait Environmental Management Committee, which reviews the progress of dugong and turtle management programs in Torres Strait. AFMA staff take an active role in dugong conservation and management
- AFMA officers conducted an education program in the Australian Sector of the “Protected Zone”, the Thursday Island area and northern Cape York Peninsula, from 1990-1999 which included teaching school children about the life cycle of dugongs and turtles, and the need for a conservative approach to their harvesting.
- The children also collected dugong and turtle catch data using calendars and stickers. The main emphasis of this program was to educate future hunters on turtle and dugong biology. Similar education of adult hunters occurred through community meetings, and a weekly fisheries radio program.

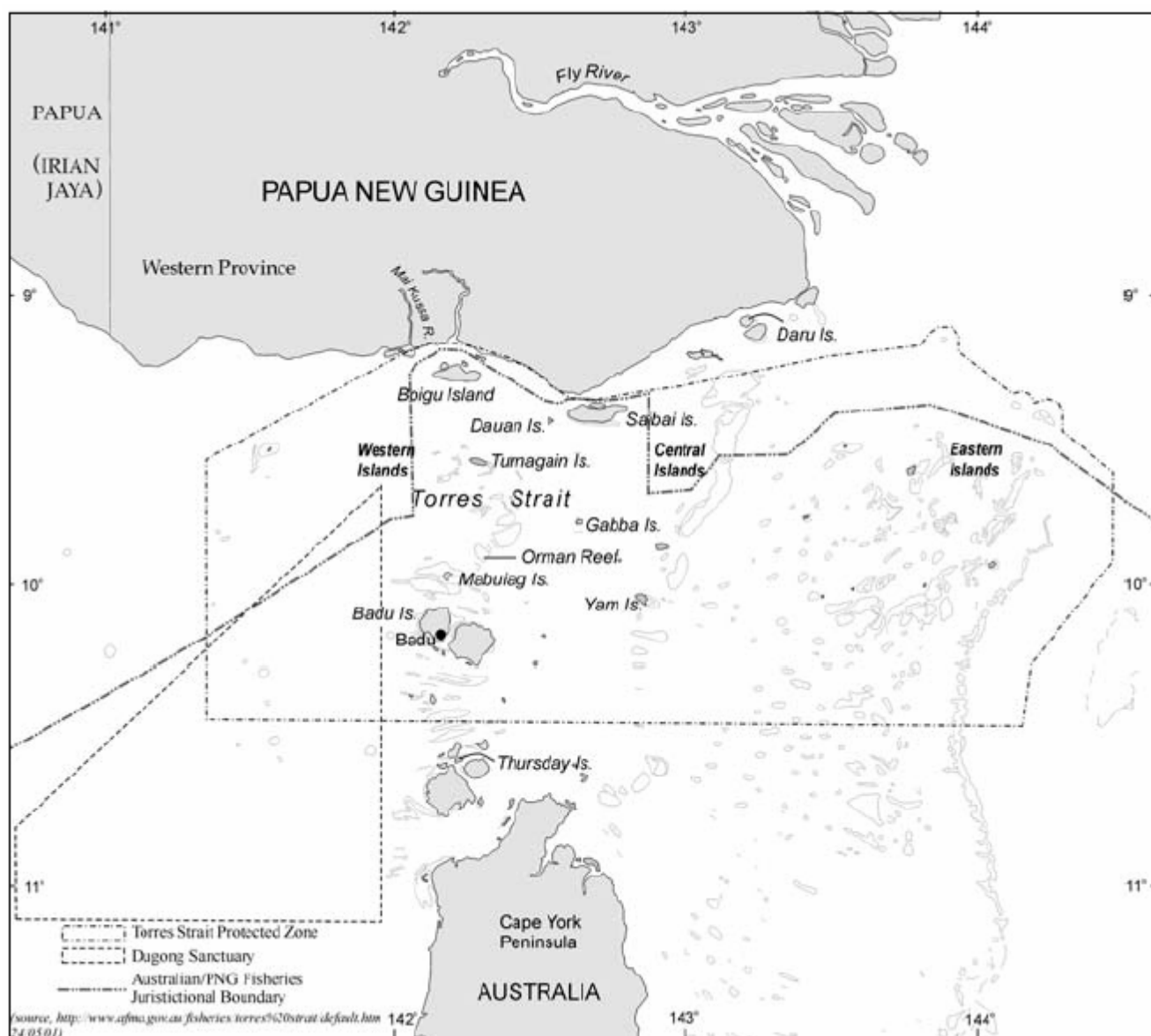


Figure 40: Map of Torres Strait showing the Torres Strait Protected Area and the Dugong Sanctuary¹⁵¹

- AFMA has prepared videos, posters, books and other material on dugong and turtle conservation in Torres Strait.
- In 1996 AFMA, in collaboration with the Marine Strategy Coordinator for the Island Coordinating Council, trained a fisheries officer from Papua New Guinea's Western Province in the technique used to monitor community dugong and turtle catches in Torres Strait.
- In 1997 the Torres Strait Fisheries Management Advisory Committee recommended to the Protected Zone Joint Authority that a community-based management strategy be developed, to ensure that traditional hunting of dugongs and turtles in the Torres Strait is sustainable.

¹⁵¹ Marsh et al. (2002)

- A workshop “Towards Community Based Management of Dugongs and Turtles in Torres Strait” was held on Thursday Island in June 1998 bringing together Torres Strait elders, hunters, community chairpersons, scientists, fisheries managers and representatives from the Queensland and Commonwealth environment departments and the Great Barrier Reef Marine Park Authority. The workshop affirmed the special role of dugongs and turtles as inherent in the cultural practices of Torres Strait Islanders. To ensure dugongs and turtles are in abundance for future generations, the workshop identified the following needs:
 - community rangers or others with equivalent roles;
 - elder guidance in the maintenance of traditional practices, and
 - provision of resources and management links with relevant government agencies and neighbours like Papua New Guinea and Papua Barat (West Papua).
- The need for community-based management of dugongs and turtles was discussed and agreed on by leaders of Australian and Papua New Guinea communities at the Australia-Papua New Guinea annual Traditional Inhabitants’ Meeting in August 1998.
- In 1998 the Australian Fisheries Management Authority also discussed this issue with the Papua New Guinea National Fisheries Authority at the annual Treaty Liaison Meeting. The need for complementary community-based management on both sides of the Torres Strait border was discussed further at the annual Australia-Papua New Guinea Torres Strait Environmental Management Committee, and the high level Torres Strait Joint Advisory Council meetings in October 1998. Concern over the lack of information available to indigenous communities on the levels of heavy metal, especially cadmium, in parts of the meat, fat and organs of dugongs, and the effect this may have on their health prompted a poster campaign. This campaign warned Indigenous communities about the possible health risks of eating internal organs of dugongs and turtles.
- In 2003 the Australian Fisheries Management Authority and the National Oceans Office conducted a technical workshop designed to develop methods to monitor the traditional catch of turtles and dugongs in the Torres Strait (and elsewhere). Issues raised included the need to involve Indigenous people in meaningful paid activities, the importance of extension of results, awareness of cultural sensitivities and the need for the program to be ongoing.
- CRC Torres Strait and James Cook University have funded a project to research the biology of marine turtles in Torres Strait, in collaboration with Torres Strait Islanders, with a focus on the sharing of Indigenous and scientific knowledge¹⁵².
- In 2005 CRC Torres Strait produced an updated version of their video *Dugong for Our Children*, providing information to Torres Strait Islander communities on the biology and sustainable management of dugong.

¹⁵² Research undertaken by Prof Helene Marsh and Dr Mark Hamann (http://www.crctorres.com/research/T4_3.htm)

- Torres Strait Islanders have collaborated with researchers and government environmental managers over many years to research, survey and monitor dugong and turtle populations in Torres Strait. Under the CRC Torres Strait research program, a PhD project¹⁵³ is currently being undertaken in the Kaiwalagal (Inner Islands of Torres Strait) region to develop strategies to assist communities to undertake catch monitoring. Kaiwalagal people from Hammond Island and Thursday Island have been employed and trained in all aspects of the project, including the collection of biological data and catch monitoring.
- Kaiwalagal people are also currently involved in a Green turtle satellite tracking project jointly funded by the Commonwealth Department of the Environment and Heritage, James Cook University and CRC Torres Strait, in partnership with Hammond Island Council and TRAWQ Community Council¹⁵⁴. Figure 41 shows the tracks of a Green turtle (called Waru). Waru was initially caught at Dollar reef (near Thursday Island) in October 2005. She was examined by laparoscope to show she was ready to breed and fitted with her transmitter. During the next 33 days she traveled via the PNG coast to Raine Island and began nesting. She nested several times until leaving Raine Island and migrating back to Dollar Reef. Her last known location was at Dollar Reef on April 21, 2006.

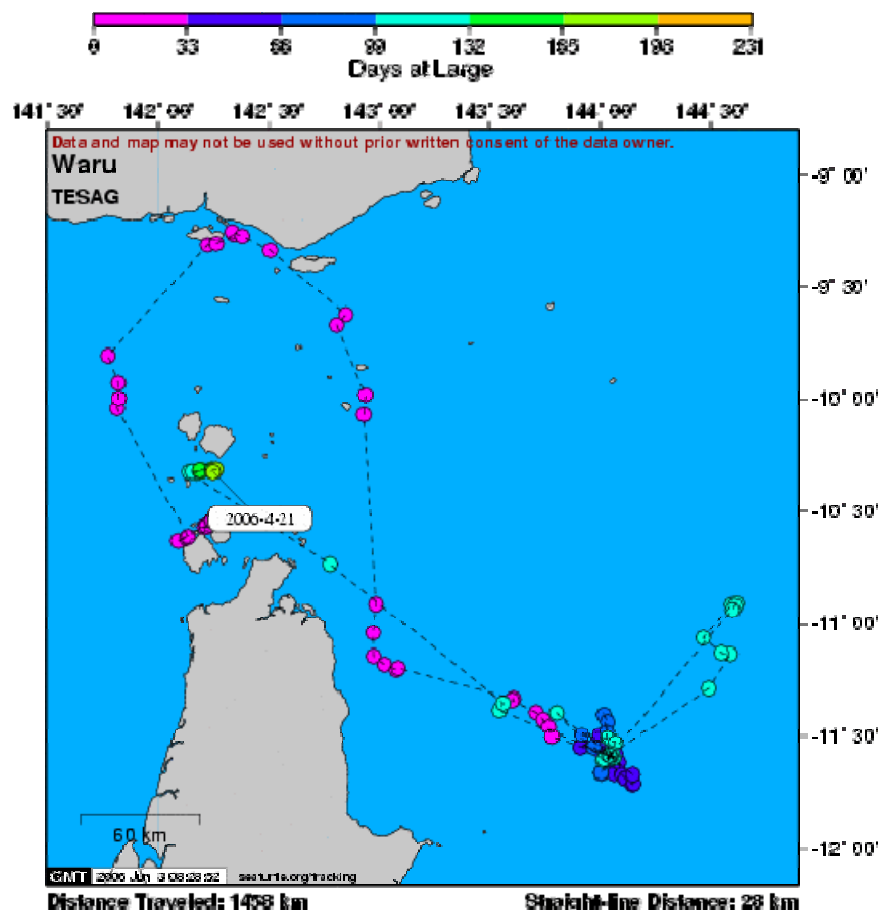


Figure 41: Movements of a green turtle (Waru) tracked by satellite in Torres Strait¹⁵⁵

¹⁵³ Research undertaken by Jillian Grayson (<http://www.crctorres.com/research/T1-11.html>)

¹⁵⁴ TRAWQ represents the residents of Tamway, Rose Hill, Aplin, Waiben & Quarantine on Thursday Island.

¹⁵⁵ http://www.seaturtle.org/tracking/?project_id=100

Great Barrier Reef Region

Traditional Use Marine Resource Agreements (TUMRAs)¹⁵⁶

The Great Barrier Reef Marine Park Authority is currently implementing Traditional Use of Marine Resources Agreements (TUMRAs) as a mechanism to cooperatively manage dugong and turtle hunting by the 70 Traditional Owner groups in their sea country within the Great Barrier Reef Marine Park. A TUMRA is a voluntary agreement created by a Traditional Owner group and accredited by GBRMPA under the 2003 Great Barrier Reef Marine Park Zoning Plan. A TUMRA will set out agreed processes for exercising Traditional Owners' rights to hunt in their sea country, with the intention of achieving sustainable use of traditional marine resources by that group. Once a TUMRA is accredited its provisions can be enforced. However, a TUMRA will not affect a Traditional Owner's native title right to hunt under s.211 of the *Native Title Act 1993*, and hence the TUMRA scheme as currently envisaged may not deliver comprehensive management of Indigenous harvest of dugongs and marine turtles in the Great Barrier Reef Marine Park. Nevertheless, since TUMRAs are focused on a geographical area they have the capacity to form the basis of cooperative management of the sea country of a Traditional Owner group. The first TUMRA, developed by Giringun Aboriginal Corporation on behalf of Djiru, Gulnay, Girramay, Banjin, Warrgamay and Nywaigi Traditional Owners, was completed in November 2005.

Turtle and Dugong Conservation Strategy for the Great Barrier Reef

The Great Barrier Reef Marine Park Authority, in conjunction with the then Queensland Department of Environment and Heritage, released the Turtle and Dugong Conservation Strategy for the Great Barrier Reef in 1994. The Goal of the Strategy is:

To have conservation strategies that contribute to maintaining turtle and dugong populations at current or higher levels throughout their range in the Great Barrier Reef Region, whilst providing for their traditional, cultural use by Aboriginals and Torres Strait Islanders.

¹⁵⁶ http://www.gbrmpa.gov.au/corp_site/key_issues/conservation/threatened_species/turtles/indigenous.html

The Strategy sets out seven Issues and Objectives (see Table 9), for which detailed strategies, timelines and implementation agencies are assigned¹⁵⁷. The strategies are to be implemented with consideration of the biological constraints of the species and through negotiation with scientists, Aboriginals and Torres Strait Islanders, conservation groups, the commercial fishing industry, management agencies and the general public.

Other measures to protect and manage dugongs in the Great Barrier Reef Region and the southern Queensland coast include:

- Protection of dugong habitat through zoning of the Great Barrier Reef Marine Park and Queensland Marine Parks;
- Special measures have been put in place, via the *Shoalwater Bay (Dugong) Plan of Management 1997*, to protect dugongs and dugong habitat in Shoalwater Bay, which is home to the largest dugong population in the southern Great Barrier Reef region (see Figure 42).
- Permanent strip closures of seagrass habitats have been established under the *Queensland Fisheries Regulations 1995*;
- Trawlers are fitted with satellite Vessel Monitoring Systems to track their movements and make sure they comply with zoning regulations;
- In 1997 the Australian and Queensland governments agreed to several measures specifically aimed at stopping the decline of dugongs along the urban coast of Queensland, including:
 - not to issue permits for the Indigenous hunting of dugongs from Cooktown down to the southern border of the Great Barrier Reef Marine Park;
 - to develop arrangements for the cooperative management of dugongs with Indigenous people;
 - to review penalties for illegal taking of dugongs;
 - to replace shark nets with drumlins;
 - to establish a two-tiered system (Zone A and Zone B) of Dugong Protection Areas (DPAs) (see Figure 43).
- Gill and mesh netting are greatly restricted or banned in seven Zone A Dugong Protected Areas totaling 2,407km², and subject to lesser modifications in eight Zone B Dugong Protected Areas totalling 2,243km² (*Fisheries Amendment Regulation [No. 11] 1997 [Queensland]*).

¹⁵⁷ http://www.gbrmpa.gov.au/corp_site/info_services/publications/turtle_conservation/twcs_strategies.pdf

Table 9: Issues and Objectives of *Turtle and Dugong Conservation Strategy for the Great Barrier Reef Marine Park*

ISSUE	OBJECTIVE
1. Habitat Protection	Identify and manage destructive human activities to protect crucial habitats for turtles and dugongs.
2. Commercial Fishing:	Continue to change fishing practices (trawling and gill netting) to minimise the level of accidental capture and death resulting from the incidental capture of turtles and dugongs.
3. Aboriginal and Torres Strait Islander Issues	Establish cooperative management systems to locally manage use, conservation and preservation of turtles and dugongs and their habitats, whilst allowing for continuance of Aboriginal and Torres Strait Islander cultures.
4. Incidental Injury and Kills	Significantly reduce the levels of incidental turtle and dugong injury and kills by boats, accidental capture, pollution, and the loss of habitat as a consequence of catastrophic events.
5. Illegal Take	By legal deterrents and community pressure, minimise illegal killing of turtles and dugongs.
6. Restoration Plans	Develop and implement the means to restore degraded or threatened habitats and turtle and dugong populations.
7. State, National and International Issues	<p>A. Encourage a reduction in the killing of turtles and dugongs in South Pacific and Asian countries through representations to state, national and international committees.</p> <p>B. Encourage a commitment by state, national and international agencies to protect and conserve turtles and dugongs.</p>

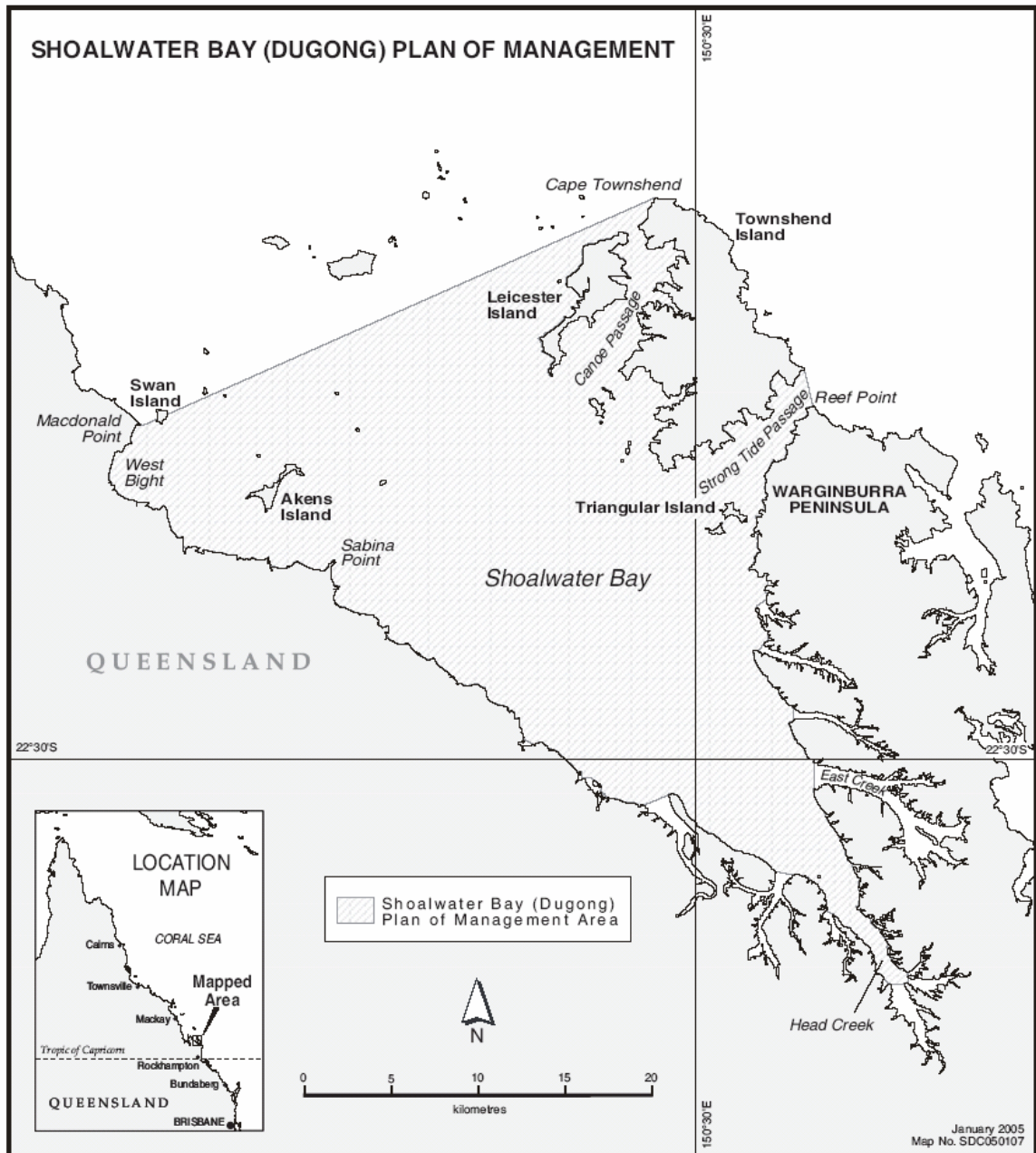


Figure 42: Map of the area of the Great Barrier Reef Marine Park subject to the *Shoalwater Bay (Dugong) Plan of Management 1997*¹⁵⁸

- An additional Zone A Dugong Protected Area of 1703km² in which gill and mesh netting practices were modified was established in Hervey Bay.
- A conservation plan for dugongs in Queensland was implemented by the Environmental Protection Agency in 1999, further reinforcing the functions of the Dugong Protection Areas.
- The Great Barrier Reef Ministerial Council has developed transit lanes with marker buoys to designate a *voluntary* 25 knot speed limit transit lane and a

¹⁵⁸ http://www.gbrmpa.gov.au/corp_site/management/shoalwater_bay/

10 knot speed restriction zone within identified important dugong feeding areas or on observing a marine animal at close range.

- Signs have been placed at boat ramps in the Dugongs Protected Areas informing boaters about the areas and regulations.
- An education campaign is underway to seek a voluntary reduction in boat speeds in shallow waters. 'Sunfish', which represents recreational fishing interests, has published a 'Code of Conduct' with suggested measures to minimise boat strikes on dugongs.
- In its 1999 review of measures for dugong conservation, the joint Commonwealth and Queensland Ministerial Council upgraded procedures for responding to reports of stranded dugong, including refining processes to establish 'cause of death' and fast release of information to the public.
- The Department of Defence has agreed to a moratorium on the use of explosives in all Dugong Protected Areas along the Queensland coast, except the Shoalwater Bay Military Training Area.
- The Department of Defence has ceased underwater detonation activities in important seagrass meadows near Triangular Island in Shoalwater Bay, and has altered other practices to minimise their risk to dugongs.
- In July 1999 the Great Barrier Reef Ministerial Council endorsed negotiations to secure a phasing out of the use of high explosives within the GBR World Heritage Area.
- Plans of management for the major tourist regions of Cairns and the Whitsunday Islands were finalised in 1998 and a plan of management for the Hinchinbrook region was finalised in 2004. These plans include protective measures for dugongs. (Note: dugongs and marine turtles are now afforded protection by being listed as Protected Species rather than under the Great Barrier Reef Marine Park Zoning Plan);
- The Moreton Bay Marine Park covers most of the Bay's tidal lands and tidal waters seawards to the limit of Queensland waters. There are five areas designated as "turtle and dugong" areas. Within these areas there are speed regulations which state that boat operators are not permitted to motor their boats on the plane. A publicity campaign was launched to assist in informing boaters of the new regulations. A Moreton Bay Dugong Watch monitoring program was launched in March 1998.
- An education and information program has been developed by the Great Barrier Reef Marine Park Authority to enhance public awareness of the value and plight of dugongs, and to advise people on how they can assist in minimising impacts. The program includes information kits, media releases, community service announcements, reef user workshops and liaison with advisory committees and interest groups.

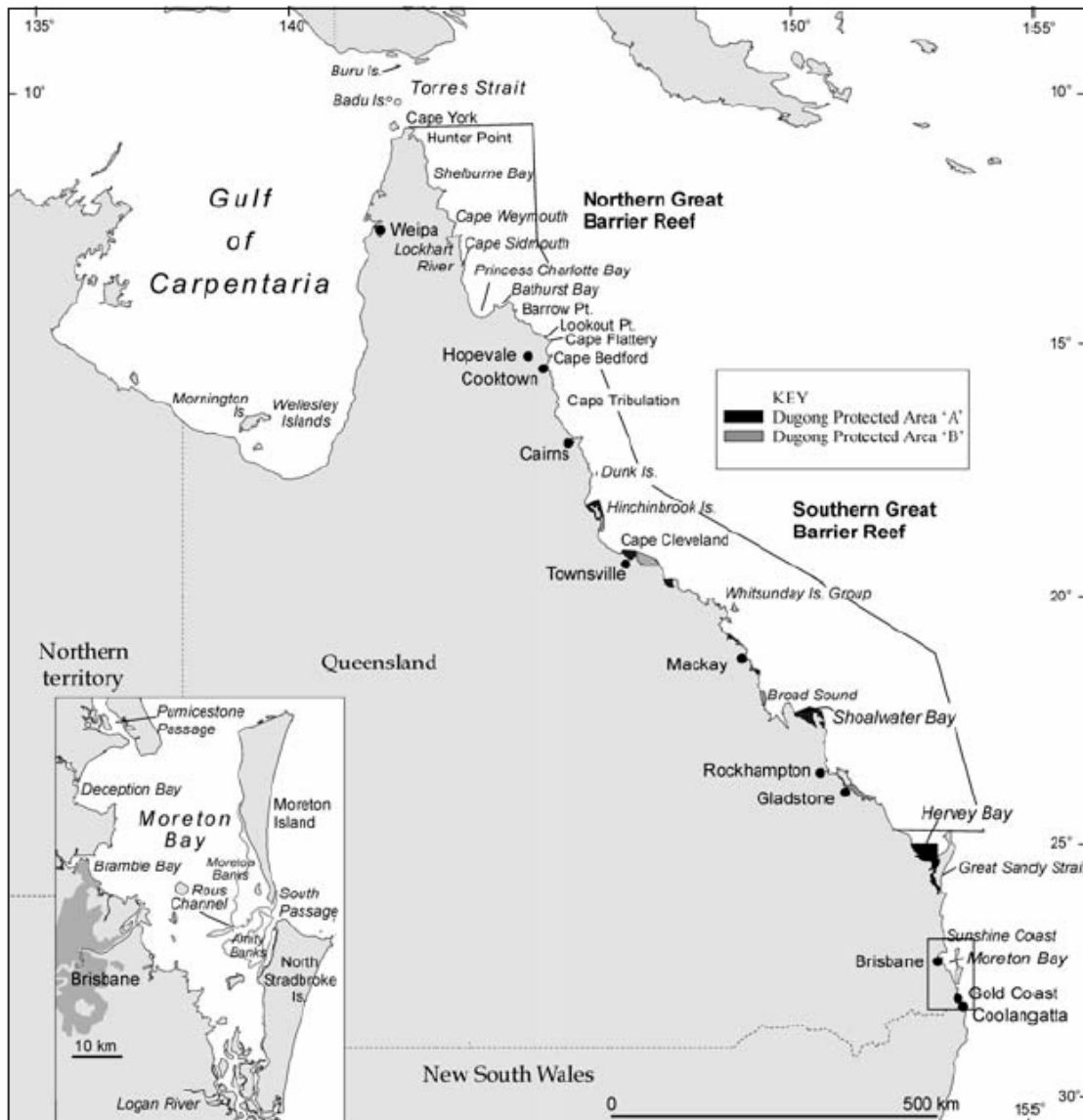


Figure 43: Map of Queensland showing the Great Barrier Reef Marine Park and Dugong Protected Areas¹⁵⁹

Marine Turtles

Queensland legislation prohibits the taking of marine turtles for commercial purposes. The *Queensland Nature Conservation Act 1992* provides protection for marine turtles, listing them as endangered and vulnerable species. Most significant rookeries for all species in eastern Queensland have been declared protected habitat under this Act. State marine parks such as Woongarra Marine Park and the Moreton Bay Marine Park contribute significantly to turtle conservation. The proportion of marine turtle nesting habitat protected in Queensland is summarised below:

¹⁵⁹ http://www.gbrmpa.gov.au/corp_site/management/shoalwater_bay/

- Loggerhead turtle: more than 90% marine turtle nesting habitat protected;
- Green turtle: more than 90% nesting habitat protected;
- Hawksbill turtle: more than 30% nesting habitat protected;
- Olive Ridley turtle: no nesting habitat protected;
- Leatherback turtle: nesting habitat protected (but access is controlled);
- Flatback turtle: about 75% nesting habitat protected.

Queensland Environment Protection Agency (QEPA) has a well-developed monitoring program for marine turtles with some data sets dating from the late 1960s. The major elements of the QEPA marine turtle research, monitoring and management program are:

- monitoring
 - Tagging census and
 - Stranding database
- research
 - demographic studies at nesting beaches and feeding areas,
 - population genetics studies,
 - migration studies,
 - incubation/embryological research,
 - El Niño Southern Oscillation (ENSO) regulation of green turtle breeding rate,
 - nutritional studies,
 - health studies, and
 - population modelling;
- management
 - fox baiting to improve loggerhead breeding success, and
 - environmental education programs.

The Queensland EPA operates a long-standing turtle interpretive, educational and research facility at Mon Repos near Bundaberg, where visitors can observe Loggerhead turtles nesting between November and March each year¹⁶⁰.

A management plan for the Queensland East Coast Trawl Fishery (ECTF) requires TEDs throughout the fishery. Legislative closures (both permanent and seasonal)

¹⁶⁰ <http://www.epa.qld.gov.au/projects/park/index.cgi?noback=1&parkid=83>

provide limited protection for nesting and/or feeding ground turtle populations, including shallow inshore seagrass areas. In the trawl fisheries of northern Australia, there are selected area closures that coincidentally provide a measure of turtle conservation. Many of the area closures are associated with inshore, shallow-water seagrass beds that are frequently the feeding grounds of some turtle species. In the Torres Strait, trawling is permanently prohibited in the area west of Warrior Reef.

Seasonal closures are applied to northern Australian trawl fisheries for a variety of reasons, however, many of the closures coincide with nesting times of some turtle species. This provides some level of conservation to nesting turtles. On the Queensland east coast, trawling is prohibited north of 22°S between 15 December and 1 March and south of 22°S between 20 September and 1 November. There are also a number of closures specifically implemented to reduce trawl activity in known turtle nesting areas, such as a closure at the northern tip of Fraser Island to protect nesting loggerhead turtles.

The ECTF developed a code of fishing ethics in regard to the capture of marine turtles and to minimise the impact of trawling on marine turtle populations. The major elements of the code are to:

- refrain from trawling within two to three nautical miles of 'major' turtle nesting beaches during the nesting season;
- limit tows to less than 90 minutes in areas of high turtle numbers;
- apply resuscitation procedures where appropriate, and return live turtles to the water as soon as possible;
- forward information on tagged or marked turtles to the Southern Fisheries Centre;
- participate in research programs monitoring the incidental capture of turtles in trawl nets; and
- participate in research programs trialing bycatch reduction devices.

Options for community management of marine turtles

Government recommendations

The Australian Government's Department of the Environment and Heritage has prepared the following recommendations¹⁶¹ to assist communities to contribute to the management of marine turtles in Australian waters:

Turtle care hints

- see and learn about marine turtles and join in the turtle watching and monitoring activities at Mon Repos Conservation Park in Queensland or other organised venues;
- do not discard old fishing lines, nets, plastic or other pollutants on beaches or into the sea;
- when boating, be on the lookout for turtles to avoid injuries to them, especially in shallow waters;
- help to control foxes and pigs near nesting beaches and ensure domestic dogs are kept under control at all times;
- control street and building lighting by appropriate design and landscaping in the vicinity of nesting beaches. Keep outside lights off during the turtle nesting season;
- avoid the use of campfires, torches and vehicle or boat lights near turtle nesting beaches;
- contact local community groups or government departments active in turtle conservation to see how you can help, especially with regular monitoring and recording of turtle activities. Record any sightings of dead turtles and identify the possible causes of death. Send these details with any tags to your state or territory conservation department.

Fishing activities

Help reduce turtle mortality:

- check longlines, gillnets and lobster/crab pots frequently to disentangle any turtles caught accidentally;
- use Turtle Excluder Devices (TEDs) for trawling and other fish netting activities. These devices allow large animals such as turtles to escape from trawl nets without being drowned;
- avoid trawling near turtle rookeries;
- avoid collisions with turtles;
- keep turtles which are in a coma on board, with their belly down and head sloping downwards until they revive.

Turtle watching

- keep the use of lights to a minimum;
- do not approach closely or shine lights or take photos using flash lights when the turtle is leaving the sea;
- wait until the turtle is laying eggs before shining lights or taking photos;
- minimise noise and sudden movements;

¹⁶¹ : <http://www.deh.gov.au/coasts/species/turtles/conservation.html>

- keep dogs away from turtles and turtle nests.

Traditional harvesting by indigenous communities

- take immature turtles in preference to adult-sized turtles;
- preferably, take eggs only from nests that are likely to get washed by the tide;
- during the mating and nesting season take male turtles in preference to female turtles;
- record hunting details such as numbers taken, location, date, species, sex, and size. Record tag numbers and send these to the address provided on the tag.

Turtle monitoring

- Record date, numbers, locations and species of marine turtles seen at sea or nesting;
- Report all sightings of sick or injured turtles;
- Report any tag numbers sighted on turtles. Include date, location and information about the turtle (do not remove tags from live marine turtles);
- Count turtles using particular nesting beaches or estimate the number by counting turtle tracks (for each set of tracks leading onto the beach and back to the sea, count one turtle) and if possible, identify the species.

Other options

In some parts of the world turtle managers take a more direct approach to supporting marine turtle populations, including:

- Relocating eggs that have been laid in nests that are likely to be flooded by high tides, raided by animals or stolen (in locations where egg collection is illegal);
- Artificially incubating eggs and raising hatchlings before releasing them into the sea (a process known as “head-starting”);
- Maintaining breeding populations of marine turtles in captivity, artificially incubating the eggs and raising turtles for the commercial market and for release into the wild.

Relocating eggs from doomed nests and/or protecting nests from predation/theft has the potential to significantly increase the production of hatchlings, and hence increase the numbers of turtles reaching breeding age. For example, a program of nest protection and egg relocation over 20 years on one island in the Caribbean is credited with increasing the number of nesting female Leatherback turtles from 18-30 during the 1980s to 186 in 2001, with a corresponding increase in hatchling production of from about 2,000 to over 49,000 per year¹⁶². In Costa Rica local villagers have made a deal with conservation authorities that they will only take eggs from nests laid below the tide line.

¹⁶² Dutton et al. (2004)

The conservation or commercial benefits of marine turtle captive breeding programs (“farming”) and head-start programs using eggs or hatchlings harvested from the wild (“ranching”) are much less certain.¹⁶³ An attempt to establish a commercial Green turtle farm in Torres Strait began in 1970, funded by the Australian Government. However, persistent difficulties in obtaining food supplies for the young turtles, disease and parasites led to the closure of the farm ten years later after an expenditure of \$6 million.

A marine turtle ranching operation on Reunion Island in the Indian Ocean began in 1972, using hatchlings collected annually from two islands 600 and 2,000km from Reunion. Despite slow growth and disease in the captive turtle population, meat and shell products were produced for the local domestic and tourist market for over 20 years. Permission from CITES to trade internationally in turtle products was not granted and the operation transferred their production to fish aquaculture, research and education during the 1990s.

A Green turtle farm has been operating on Grand Cayman Island in the Caribbean since 1969, using eggs harvested from Costa Rica, as well as mature adults harvested from several Caribbean countries. Without permission to trade internationally the farm became bankrupt and was taken over by the Cayman Island Government. The farm continues largely as a tourist facility and produces meat for the local market; the farm also releases immature turtles into the sea.

In summary, turtle farming or ranching is very expensive and requires substantial expertise and long term commitment. Similarly, scientists and managers generally agree that head-starting is not an effective way of increasing turtle numbers. Released turtles may introduce diseases into the wild population or may change the natural genetic make up of a wild breeding population. Turtles raised in captivity may also not have developed the normal behavioral patterns that enable them to join a breeding population or to find an appropriate nesting beach. Instead, protecting habitats and reducing mortality of turtles and eggs are more effective and a better use of time of resources.

¹⁶³ Ross (1999); Donnelly (1994)

Part 3 Key References: Protection and management

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